

## THREE NEW SPECIES OF THE SUBGENERA *MICROSAURUS* AND *RAPHIRUS* OF THE GENUS *QUEDIUS* FROM CHINA (COLEOPTERA, STAPHYLINIDAE, STAPHYLININAE)

ZHENG Fa-Ke, XIAO Fan, LI Jun

Life Science College, China West Normal University, Nanchong 637002, Sichuan, China

**Abstract** Three new species of the subgenera *Microsaurus* and *Raphirus* of the genus *Quedius* Stephens from Sichuan, China, *Quedius* (*Microsaurus*) *lii*, *Q.* (*M.*) *xiaoe*, and *Q.* (*Raphirus*) *oprobius* are described and illustrated. *Q.* (*M.*) *lii* is not assigned to any species group at present. *Q.* (*M.*) *xiaoe* belongs to the *mukuensis* group of the subgenus *Microsaurus*, and *Q.* (*R.*) *oprobius* is a member of the *intriatus* group of the subgenus *Raphirus*.

**Key words** Staphylinidae, *Quedius*, subgenus *Microsaurus*, subgenus *Raphirus*, *mukuensis* group, *intriatus* group, new species, Sichuan, China.

In this paper, three new species of the subgenera *Microsaurus* and *Raphirus* of the genus *Quedius* from Sichuan, China, *Quedius* (*Microsaurus*) *lii*, *Q.* (*M.*) *xiaoe*, and *Q.* (*Raphirus*) *oprobius* are described and illustrated. Of them, *Q.* (*M.*) *lii* from Dafending Nature Reserve, Mabian County, can not be assigned to any species group; *Q.* (*M.*) *xiaoe* and *Q.* (*R.*) *oprobius* from Yele Nature Reserve, Mianning County, is designed to the *mukuensis* group of the subgenus *Microsaurus*, and the *intriatus* group of the subgenus *Raphirus* respectively. The type specimens are deposited in the Life Science College, China West Normal University, Nanchong, Sichuan, China.

### 1 The Unknown Group

*Quedius* (*Microsaurus*) *lii* **sp. nov.** (Figs. 1–7, 20–21)

Type material. Holotype male, China, Sichuan, Dafending Nature Reserve, Mabian County (28°26′–28°45′ N, 103°13′–103°26′ E; 1 900–2 500 m, 23 July, 2005, collected by LI Jun. Paratype 1 ♀, 13 Aug. 2005, locality and collector ditto.

Diagnosis. The species is not assigned to any species group, it may be referred to a new group. It is close to *Q.* (*M.*) *amicorum* and *Q.* (*M.*) *hailuoguo* of the *seduanus* group of the subgenus *Microsaurus*, but can be easily recognized by the characteristic coloration of body, the quite distinctive shape of aedeagus, and the relative larger body.

Description. Head brownish black, last two (visible) abdominal segments black, pronotum and first four (visible) abdominal segments red, elytra blue to blackish blue, antennae, maxillary and labial palpi, and legs reddish brown, pubescence brownish black to black.

The coloration on the body resembles to those of the members of the genera *Bolitogyrus* Chevrolat and *Paederus*

Mulsant & Rey.

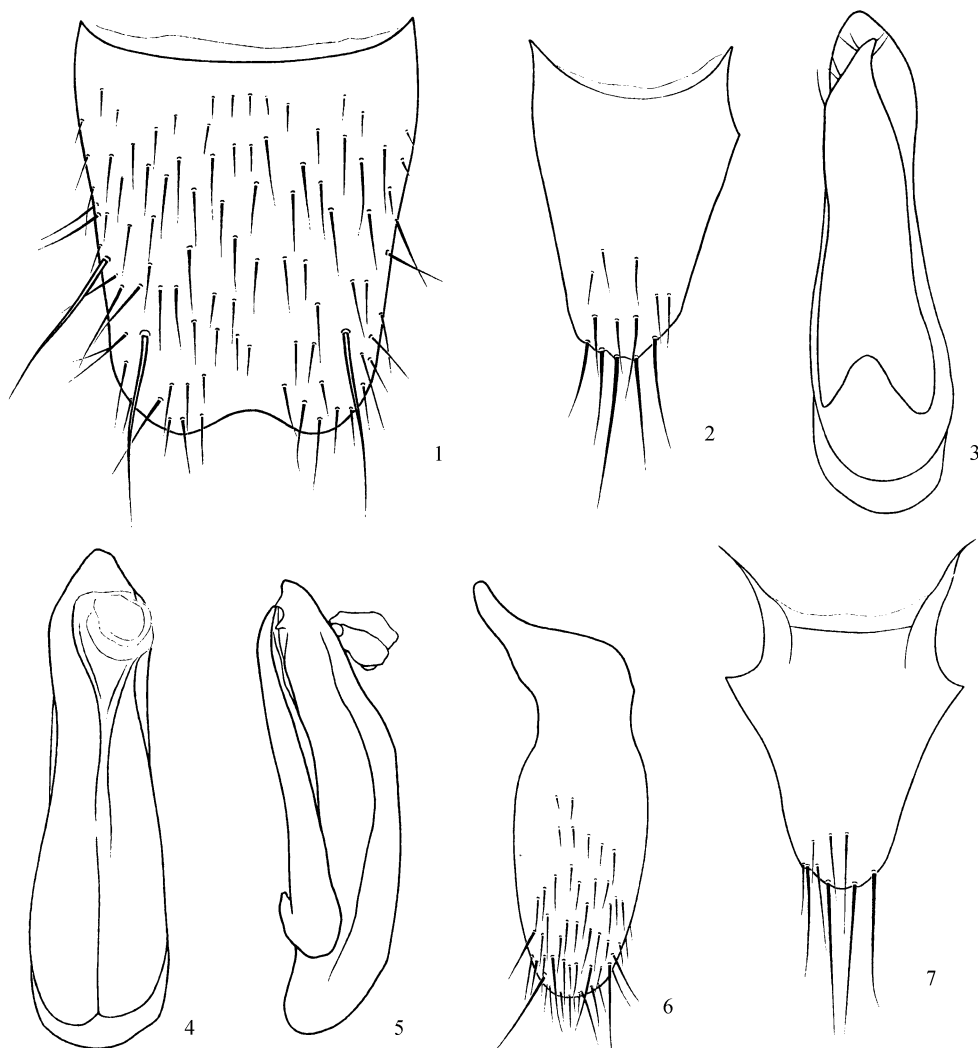
Length: 8.0–8.2 mm.

Head subquadrate, wider than long (ratio 1.23), distinctly narrowed posteriorly behind eyes, posterior angles obtuse; eyes moderately large and convex, temples shorter than eyes (ratio 0.63); clypeus impunctate, with two shallow, small round impressions; anterior frontal puncture almost against inner margin of eye, posterior frontal puncture close to posteriomedial margin of eye, separated from it by distance about half diameter of puncture, temporal puncture situated closer to posterior margin of eye than to posterior margin of head, two setiferous punctures between posterior frontal puncture and posterior margin of head, temple without other punctures; surface of head with very fine and dense microsculpture consisting of transverse waves, and mingled with sparse micropunctulation. Antenna not reaching posterior margin of pronotum when reclined, segments 1–3 elongate and dilated apically, segments 4–5 distinctly longer than wide, segments 6–10 slightly longer than wide, gradually becoming shorter, last segment shorter than two preceding segments combined (ratio 0.84) and bluntly acute at apical portion.

Pronotum wider than long (ratio 1.18), widest at about posterior third and subarcuately more narrowed anteriorly than posteriorly, anterior angles angulate, posterior rounded, lateral portions not flattened, finely bordered; dorsal rows each with three, sublateral rows each with one punctures, situated before level of large lateral puncture; microsculpture similar to that on head. micropunctulation lacking.

Scutellum impunctate, with extremely fine microsculpture consisting of transverse striae.

Elytra subquadrate, longer (ratio 1.33) and wider (ratio 1.15) than pronotum, about as long as wide,



Figs 1-7. *Quedi (Microsaurus) lii* sp. nov. 1-6. Male. 1. Sternite 8. 2. Tergite 10. 3-5. Aedeagus. (3. Ventral view. 4. Dorsal view. 5. Lateral view.) 6. Sternite 9. 7. Female tergite 10.

slightly widened posteriad; punctuation slightly coarse, sparse, without microsculpture between punctures.

Legs with segments 1-4 of protarsus strongly widened.

Abdomen with tergite 7 bearing whitish apical fringe; punctuation of the tergites very sparse, only scattered at the bases and on last two tergites, surface between punctures without microsculpture, but last two tergites with exceedingly fine and dense microsculpture consisting of transverse striae.

Male. Sternite 8 with two long setae on each side, with shallow arcuate emargination in middle of posterior margin, small triangular area in before emargination smooth; tergite 10 broadly triangular at apical margin, with five long and a few setae different in size at or near apical margin; sternite 9 with arcuate apex and numerous setae different in length at apical portion.

Aedeagus with both median lobe and paramere obviously twisted and asymmetrical; median lobe gradually dilated into subtriangular twisted apical part,

with two denticles on face adjacent to paramere. Paramere slender, asymmetrical at apical portion, curved toward right side of median lobe, apex not reaching apex of median lobe, four long setae at apex; other three at each lateral margin below apex; underside of paramere without sensory peg setae.

Female. Segments 1-4 of protarsus similar to those of male, but slightly less dilated. tergite 10 subtriangular, apex narrowly arcuate, with 4 long and a few setae of different size at or near apical margin.

Habitat and Distribution. The species was found in a haystack. It is known only from Dafending Nature Reserve, Mabian County, Sichuan, China.

Etymology. The specific epithet is a patronymic in honor of the collector of the holotype, LI Jun.

## 2 The mukuensis Group

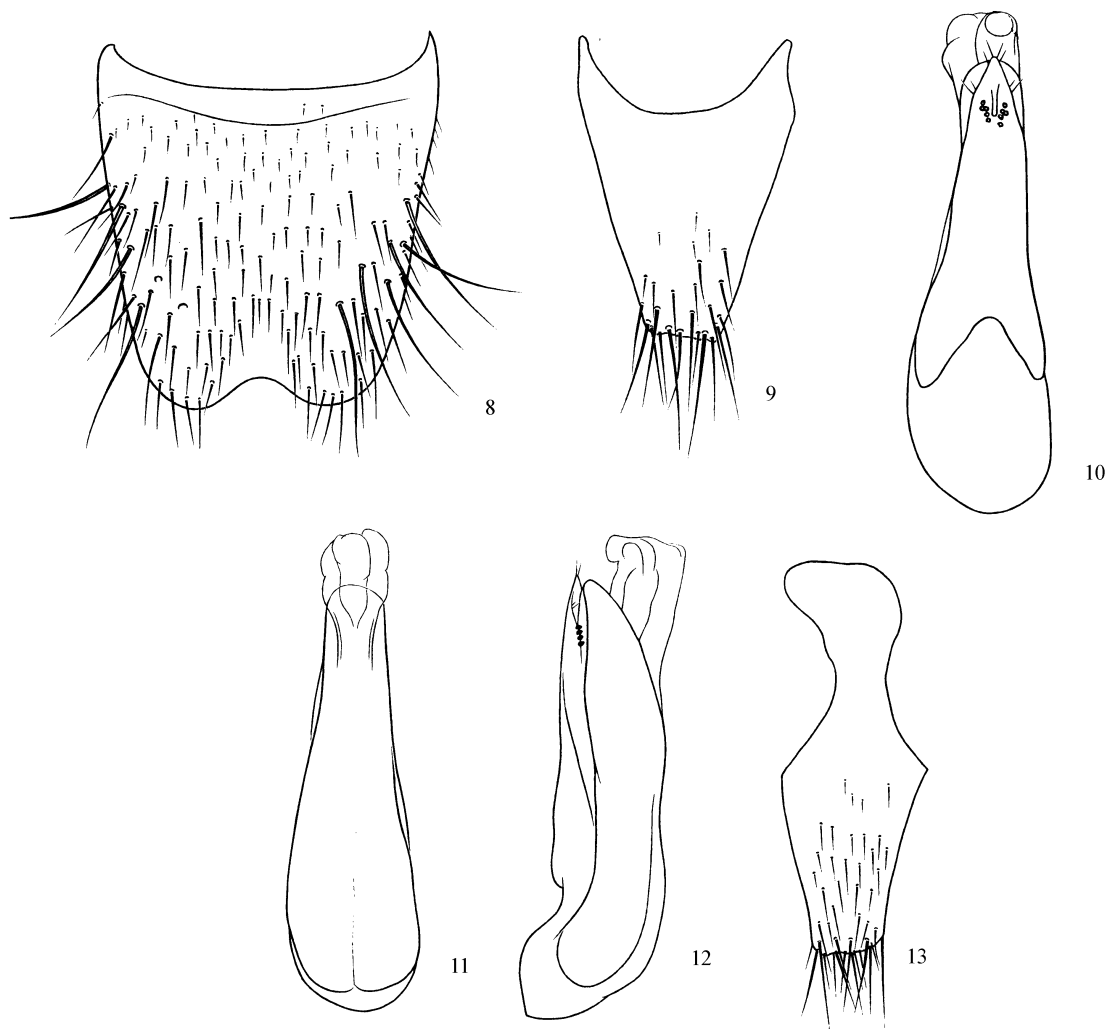
*Quedi (Microsaurus) xiaoae* sp. nov. (Figs 8-13, 22)

Type material. Holotype male, China, Sichuan,

Yele Nature Reserve, Mianning County ( $28^{\circ}50'-29^{\circ}00'N$ ,  $101^{\circ}59'-102^{\circ}16'E$ ; 3 400 m), 8 Aug. 2005, collected by XIAO Fan.

**Diagnosis.** The species is similar to sympatric *Q.* (*M.*) *guai* Zheng, but can be easily recognized by the

characteristic shape of the paramere of aedeagus, smaller size, different coloration of body, more setiferous punctures around posterior frontal puncture, and coarse, sparse punctuation on elytra.



Figs 8-13. *Quedius* (*Microsaurus*) *xiaoe* sp. nov. 8. Sternite 8. 9. Tergite 10. 10-12. Aedeagus. (10. Ventral view. 11. Dorsal view. 12. Lateral view.) 13. Sternite 9.

**Description.** Head black; pronotum brownish black, the sides broadly and obscurely brownish yellow; elytra black, the suture and apical margin narrowly brownish yellow; abdomen brownish black, posterior margins of the segments 3-6 and whole of the segment 7 narrowly brownish yellow; antennae, maxillary and labial palpi, and legs brownish yellow to brownish black; pubescence brown to brownish black.

Length: 7.3 mm.

Head transversely quadrate (ratio 1.1), slightly narrowed posteriad behind eyes, posterior angles obsolete; eyes moderate in size and less convex, temple about as long as eyes; clypeus impunctate, but with two shallow and broad transverse impressions; anterior frontal puncture at or against inner margin of eye, posterior

frontal puncture distant from posteriomedial margin of eye, three additional setiferous punctures between posterior frontal puncture and posteriomedial margin of eye, seven to eight around posterior frontal puncture, temple with a few punctures different in size; microsculpture of surface very fine, distinct, consisting of dense, transverse waves. Antenna not reaching posterior margin of pronotum when reclined, segments 1-3 elongate and dilated apicad, segments 4-6 distinctly longer than wide, segments 7-10 about as longer as wide, last segment shorter than two preceding segments combined (ratio 0.83) and bluntly acute at apical portion.

Pronotum wider than head (ratio 1.28), slightly wider than long (ratio 1.08), widest at the middle and

subarcuately more narrowed posteriad than antieriad, anterior angles angulate, posterior rounded, lateral portions not flattened and finely bordered; dorsal rows and sublateral rows each with three punctures, one setiferous puncture between each dorsal and sublateral row, posterior puncture of sublateral rows situated behind level of large lateral puncture; microsculpture similar to that on head, but finer and denser.

Scutellum impunctate, with extremely fine microsculpture consisting of transverse striae,

Elytra subquadrate, longer (ratio 1.25) and wider (ratio 1.19) than pronotum, about as long as wide, slightly widened posteriad; punctation and pubescence moderately coarse and sparse, slightly superficial, without microsculpture between punctures.

Legs with segments 1 to 4 of protarsus strongly dilated.

Abdomen with tergite 7 bearing whitish apical fringe, punctuation of abdominal tergites slightly finer than that on elytra, pubescence similar to that on elytra, transverse microsculpture extremely fine and dense.

Male. Stemite 8 with six long setae on each side, with broadly arcuate emargination in middle of posterior margin, triangular area in before emargination smooth; tergite 10 subtriangular, apex nearly truncated, with numerous setae of different size at or near apical margin; sternite 9 slightly oblique at apical margin, with numerous setae of different length at apical portion.

Aedeagus rather stout and short; median lobe slightly dilated at apical portion, apex broadly arcuate, with long apical tooth on face adjacent to paramere. Paramere broad and large in the base; gradually narrowed anteriorly into subacute apical portion, apex slightly exceeding apex of median lobe; four apical setae at apex, two lateral setae near each lateral margin below apex; two sensory peg setae groups on underside of paramere each composed of five small black tubercles.

Female: unknown.

Habitat and Distribution. The species was found in under bark, it is known only from the type locality of Sichuan, China.

Etymology. The name of species is a patronymic in honor of the collector of the holotype, XIAO Fan.

### 3 The intricatus Group

*Quedius* (*Raphirus*) *coprobis* **sp. nov.** (Figs. 14-19, 23)

Type material. Holotype male, China, Sichuan, Yele Nature Reserve, Mianning County (28°50'-29°00' N, 101°59'-102°16' E; 2 660 m), 11 Aug. 2005, collected by XIAO Fan.

Diagnosis. The species is very similar to *Q.* (*M.*) *rivulorum* Smetana from Yunna, but can be recognized by the median lobe of aedeagus with three longitudinal

carinae on face adjacent paramere, two sensory peg setae groups on underside of paramere arranged comparatively regular, tergite 10 with four long and four shorter setae at or near apical margin, and larger in the size.

Description head, pronotum, elytra black, abdomen brownish black; the body with metallic blue or bluish black lustre; antennae, maxillary and labial palpi brownish black; legs brownish black with brownish yellow the femora.

Length 7.0 mm.

Head slightly wider than long (ratio 1.18), evidently narrowed behind eyes, posterior angle obsolete; eyes large and convex, temples obviously shorter than eyes (ratio 0.36); clypeus impunctate; two large setiferous punctures between anterior frontal punctures, a few smaller in front of them; irregular large area on vertex with a few fine punctures; group of very coarse, frequently subrugose punctures near inner margin of eyes and around posterior frontal puncture; surface of head with distinct microsculpture of meshes on clypeus, vertex and interspace of punctures. Antenna not reaching posterior margin of pronotum when reclined and rather thickened toward apex, segments 1-3 elongate and dilated apically, segments 4-7 slightly longer than wide, segments 8-10 about as long as wide, last segment distinctly shorter than two preceding segments combined (ratio 0.76) and bluntly acute at apical portion.

Pronotum slightly wider than long (ratio 1.08), widest at about middle, more narrowed antieriad than posteriad, anterior angles angulate, posterior rounded, lateral portions not flattened, markedly margined; dorsal rows irregular, each with eight punctures, and expanded into a group of puncture posteriorly; lateral portion each with a group of 6 or 7 punctures; surface of pronotum with microsculpture consisting of transverse waves.

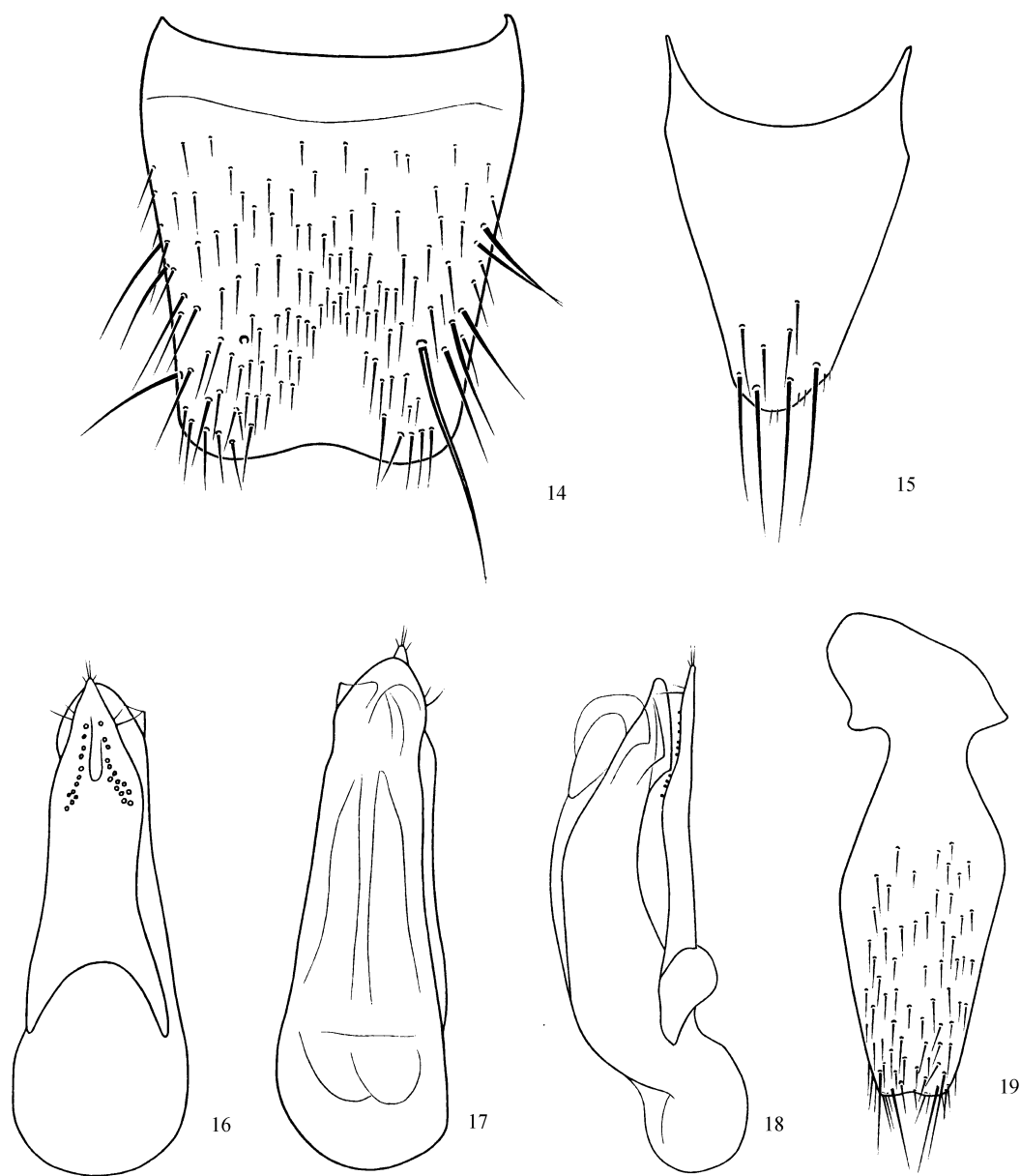
Scutellum impunctate, microsculptures similar to that on pronotum.

Elytra subquadrate, longer (ratio 1.25) and wider (ratio 1.16) than pronotum, about as long as wide, slightly widened posteriad; with elevated smooth suture; punctation moderately coarse and deep, confluent, to form variable transverse and oblique rugae; pubescence brownish golden; surface between punctures without microsculpture. Wings fully developed.

Legs with segments 1 to 4 of protarsus strongly dilated.

Abdomen with tergite 7 bearing whitish apical fringe; punctuation of abdominal tergites very fine; pubescence brownish golden; surface between punctures with exceedingly fine and dense microsculpture of transverse striae.

Male. Stemite 8 with two long setae on each side, with broad and shallow arcuate emargination in middle of posterior margin, triangular area in before emargination



Figs 14-19. *Quedius* (*Raphirus*) *coprobis* sp. nov. 14. Sternite 8. 15. Tergite 10. 16-18. Aedeagus. (16. Ventral view. 17. Dorsal view. 18. Lateral view.) 19. Sternite 9.

smooth; tergite 10 with fimbriate apex, with four long setae at apical margin and four short setae in front of them; sternite 9 with four slightly differentiated apical setae and numerous setae different in size.

Aedeagus with median lobe slightly, evenly narrowed anteriorly, with broadly arcuate apex, lateral margin minutely notched before apical portion, with three longitudinal carinae on face adjacent to paramere. Paramere very large and broad, lateral margin with two light notches before apex, four apical setae minute, two unequally long lateral setae at each lateral margin below apex; sensory peg setae groups on underside of paramere arranged comparatively regularly into two rows, each consisting of 11 and 13 small black tubercles.

Female: unknown.

**Habitat and Distribution.** The species was found in excrement, it is known only from the type locality of Sichuan, China.

**Etymology.** The species is named after habitat; it was found in excrement.

**Acknowledgments** We are heartily grateful to Dr. Ales Smetana of the Agriculture and AgriFood Canada, Research Branch, Central Experiment Farm, Ottawa, for his kind help with the literature and specimens. We are very grateful to Dr. Lee H. Herman, Curator, Division of Invertebrate Zoology, American Museum of Natural History, who gave us kind help with the literatures.



Figs. 20-21. *Quedius* (*Microsaurus*) *lii* sp. nov. ( 20. Male. 21. Female. ). Fig 22. *Quedius* (*Microsaurus*) *xiaoae* sp. nov. Fig 23. *Quedius* (*Raphinus*) *oprobius* sp. nov.

REFERENCES

Smetana, A. 1988. Revision of the tribes Quediini and Aanygnathini. Part. II. The Himalayan Region (Coleoptera: Staphylinidae). *Quaestiones Entomologicae*, 24 (2): 163-464.  
Smetana, A. 1995. Contributions to the knowledge of the Quediina

(Coleoptera, Staphylinidae, Staphylinini) of China. Genus *Quedius* Stephens, 1829. Part 2. Subgenus *Microsaurus* Djean, 1833. Section 2. *Bulletin of the National Science Museum*, Tokyo, A 21 (4): 231-250.  
Smetana, A. 1996. Contributions to the knowledge of the Quedina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 5. Genus *Quedius* Stephens, 1829. Subgenus *Microsaurus* Djean, 1833. Section 4.

*Bulletin of the National Science Museum, Tokyo*, A, 22 (3): 113-132.

Smetana, A. 1997b. Contributions to the knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 9. Genus *Quedius* Stephens, 1829. Subgenus *Microsaurus* Dejean, 1833. Section 7. *Elytra*, Tokyo, 25 (2): 451-473.

Smetana, A. 1998. Contributions to the knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 10. Genus *Quedius* Stephens, 1829. Subgenus *Raphinus* Stephens, 1829. Section 3. *Elytra*, Tokyo, 26 (1): 99-113.

Smetana, A. 1999a. Contributions to the knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 13. Genus *Quedius* Stephens, 1829. Subgenus *Microsaurus* Dejean, 1833. Section 8.

*Elytra*, Tokyo, 27 (1): 213-240.

Smetana, A. 2002. Contributions to the knowledge of the Quedina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 21. Genus *Quedius* Stephens, 1829. Subgenus *Raphinus* Stephens, 1829, Section 4. *Elytra*, Tokyo, 30 (1): 119-135.

Zheng, F.K. 2003. New species and records of *Quedius* (*Raphinus*) *multipunctatus* and *himalayicus* groups (Coleoptera: Staphylinidae) from China. *Oriental Insects*, 37: 289-300.

Zheng, F.K. 2006. Three new species of the genus *Quedius* (Coleoptera, Staphylinidae) from China. *Acta Zootaxonomica Sinica*, 31 (1): 173-179. [动物分类学报]

中国颊脊隐翅虫属二点与一点颊脊隐翅虫亚属三新种 (鞘翅目, 隐翅虫科, 隐翅虫亚科)

郑发科 肖 凡 李 君

西华师范大学生命科学学院 南充 637002

**摘 要** 记述中国颊脊隐翅虫属 *Quedius* 二点颊脊隐翅虫亚属 *Microsaurus* 和一点颊脊隐翅虫亚属 *Raphinus* 3 新种, 李氏二点颊脊隐翅虫 *Quedius* (*Microsaurus*) *li* sp. nov., 肖氏二点颊脊隐翅虫 *Quedius* (*Microsaurus*) *xiaoe* sp. nov., 和粪一点颊脊隐翅虫 *Quedius* (*Raphinus*) *coprobis* sp. nov.。李氏二点颊脊隐翅虫至

今未归入任何种群, 可能代表一个新群, 肖氏二点颊脊隐翅虫隶属二点颊脊隐翅虫亚属的穆柯颊脊隐翅虫群 *mukouensis*, 粪一点颊脊隐翅虫为一点颊脊隐翅虫亚属的里颊脊隐翅虫群 *intricatus* 的成员。

**关键词** 隐翅虫科, 颊脊隐翅虫属, 二点颊脊隐翅虫亚属, 一点颊脊隐翅虫亚属, 穆柯颊脊隐翅虫群, 里颊脊隐翅虫群, 新种, 中国.

中图分类号 Q969.48